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Design Construction Analysis Feedback

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CEMP-CE

Subject: Post-Discharge Tests Requirements For Containment And Disposal of Aqueous Film-Forming Foam (AFFF)

Applicability: Information

Reference: ETL 1110-3-481, Containment And Disposal of Aqueous Film-Forming Foam Solution and Corps of Engineers Guide Specification (CEGS) 15355, Aqueous Film-Forming Foam (AFFF) Fire Prote :tion System.

1. This DCAF provides guidance for containment and disposal of aqueous film-forming foam (AFFF) discharges from AFFF fire extinguishing systems discharge test.

2. Typically AFFF fire suppression systems are provided in aircraft hangers. The present CEGS 15355, AFFF Fire Protection System, requires AFFF concentrate to be 3 percent conforming to "MIL-SPEC" MIL-F-24385. This specification covers the requirements for AFFF consisting of fluorocarbon surfactant. A concern of AFFF systems is the discharge of AFFF foam solution. Untreated AFFF solution should not be allowed to flow into the environment, or into the wastewater treatment system in large quantities. A drawback to fluorochemical surfactant is that they can move with water in aquatic systems and leach through soil. Fluorochemical surfactant will not break down as it leaches through soil. If allowed to soak into the ground, fluorochemical surfactant may eventually reach groundwater or flow out into surface water and cause foaming. Fluorochemical surfactant must be metered into wastewater treatment plants at a rate sufficiently low so that AFFF will not cause excessive foaming in the aeration basin of the wastewater treatment system.

3. Confirm AFFF containment systems are a part of the design during the BCOE review. Numerous types of systems can be used, depending upon the fire protection system and anticipated maximum discharges. Containment may be provided by underground tanks, aboveground tank with sump, earthen retention ponds or containment trench.

4. Disposal and treatment of AFFF biologically in a wastewater treatment plant is the most common method. Disposal of the AFFF solution must be coordinated with the installation. The concentration of foam solution in the influent reaching a wastewater treatment plant should be no greater than 1700 parts per million (ppm). This degree of dilution should prevent shock loading and foaming which can upset treatment plant operation. As a example, if a discharge is to be made to a 6-million-gallon-per-day treatment plant, the solution could be discharged at a rate of 7 gallons per minute (gpm). It could take several days to dispose of the solution. Discharge levels of AFFF must be determined in the early stages of design and operators of affected plants should be consulted in advance. In some instances, treatment plant modifications may be necessary, new environmental permits may be needed, or existing permits updated.

5. In summary, the usual method of disposing AFFF solution is through regulated flow to the wastewater treatment plant. Flow rate is dependent upon the size and capacity of the treatment plant, and must not exceed 1700 ppm at the plant. Other methods such as solar evaporation, on-site treatment and transport to a off-site treatment facility may be utilized based on local conditions. Regardless of what type of disposal arrangement is provided, it is essential that foam solution from system testing and inadvertent discharges be disposed of in an environmentally responsible manner.

6. This DCAF Bulletin has been fully coordinated with CEMP-ET. My point of contact is the Construction Evaluation Branch (CEMP-CE) at (202) 761-0205.

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